Art I.—*Further Descriptions of the Tertiary Polyzoa of Victoria.—Part II.*

By C. M. MAPLESTONE.

(Plates I. and II.)

[Read 9th March, 1899.]

Stenostomaria solida, Waters, sp. (Pl. I., Fig. 1 and 1*a*).

Oœcium subglobose, or galeate, with large, subquadrate, depressed, but convex, coarsely granulated area in front, surrounded with a thick, elevated margin (in the upper part double), which at the centre of the top is disconnected, the ends curving slightly upwards; at the lower angles it extends only a short distance over the oœcial opening and curves upwards with thickened, rounded ends. A zoœcium above the depressed area with the thyrostome rounded above, contracted by a denticle on each side, with an acute deep sinus in the lower margin, a ridge on each side of the thyrostome extending outwards as a continuation of the margin of the depressed area, bearing a small oval avicularium on the summit. Oœcial aperture wide, arched above. Dorsal surface very convex, with a ridge around the margin and a central vertical one running over an oval enlargement in the centre.

Locality.—Mornington. (T. S. Hall). A single specimen which, unfortunately, is imperfect, in that it has not the usual proximal zoœcium, so that the shape of the oœcial aperture is not defined. The thyrostome of the upper zoœcium is not quite perfect, but is sufficiently so to show that its shape is the same as that of the ordinary zoœcia of *S. solida;* and on the dorsal surface is a globose elevation under a median ridge similar to that which exists in some specimens of this species.

As *S. solida* is the only species of the genus known, and it is very plentiful in the deposit in which this was found, I think it is quite certain this oœcium belongs to that species.

Catenicella nutans, n. sp. (Pl. I., Fig. 2).

Oœcium oval, with broad base, round in section. Two large falcate or crescentic, deeply depressed areas (irregularly and coarsely granulated), and a small, crescentic, slightly depressed area on each side below them in front; also a semi-elliptical one on the summit. Oœcial aperture very wide; upper margin arcuate, lower curved but partially hidden by the front surface of the zoœcium which is bent over at about a right angle to the axial line of the oœcium. The zoœcium has three pyriform fenestræ, with elevated edges; the orifice of the connecting tube is exposed to view.

Locality.—Mornington. (Rev. A. W. Cresswell). A single specimen, very perfectly preserved.

Catenicella conica, n. sp. (Pl. I., Fig. 3).

Oœcium semi-oval or conical, very rugose, with a short tube at the summit (probably avicularian); oœcial aperture wide, arched above, sinuous below; an elongated, curved umbo on each side of it; the surface of the upper portion is very uneven, rugose, with several small depressed areas of irregular shape. The proximal zoœcium very broad, front indistinct, being turned upwards, but there are traces of 2·3 fenestræ; the lateral processes are very wide, extending beyond the oœcium, and have two hollows or depressions on each side.

Locality.—Muddy Creek. (T. S. Hall).

This, like *C. nutans*, bends over the proximal zoœcium so that the latter shows in perspective, and the whole of the orifice of the connecting tube is exposed to view. It is not very well preserved, but the shape of the oœcium and the very broad proximal zoœcium distinguish it from any other species. A single specimen only seen.

Catenicella rotundata, n. sp. (Pl. I., Fig. 4).

Oœcium globose, with a large, very deep crescentic depression, the surface of which is very coarsely granulated on each side, and a depression at the summit. Oœcial aperture very wide, arcuate above, nearly straight below. Proximal zoœcium subquadrate, with four fenestræ.

Locality.—Mornington. (T. S. Hall).

A single specimen. This like *C. nutans* and *C. conica* has the proximal zoœcium inclined to the axial line, but not to so great an extent as in those species. The globular shape and the very deep crescentic depressions are characteristic.

Catenicella personata, n. sp. (Pl. I., Fig. 5).

Oœcium irregular in shape, somewhat globose; aperture very wide, oblong, with rounded sides; margin very wide, thick and partially overhanging in front; upper part very rugose, with irregular perforations over the middle portion. Proximal zoœcium subtriangular with five fenestræ.

Locality.—Mornington. (T. S. Hall).

A single specimen. It is possibly imperfect, but is quite distinct from any other species. It, like the three previously described species, has the oœcium inclined to the zoœcium, and the slide had to be tilted to gain a view of the fenestræ.

Among the *Catenicellæ* described and figured by Dr. MacGillivray in his Monograph, are *C. circumcincta* (Waters), *C. expansa* (McG.), *C. tenuis* (McG.), *C. mamillata* (McG.), and *C. pulchella* (mihi), which, with four new species described in this paper, form a distinct group characterised by the fenestræ being round or oval, distinctly separated; not pyriform and aggregated as in the other *Catenicellæ*.[1] All are found fossil in our Tertiary deposits, the only one which has also been found living is *C. pulchella* which was described by me in the Journal of the Microscopical Society of Victoria in May, 1880. It was afterwards described by Dr. MacGillivray to this Society in November, 1880, as *C. concinna*, which he then stated might be my *C. pulchella*, but that I had described the ornamentation as "round bosses." Afterwards he recognised my species, and Busk in the "Challenger" Reports, describes it on page 13, and figures it (Pl. I., Fig. 4) showing the so-called fenestræ as bosses, as I had described them; and he says, "at first sight *scarcely referable to either the fenestrate or vittate section.* But it appears properly to belong to the latter," for which section Dr. MacGillivray

[1] In speaking of *Catenicellæ* I allude to the genus as defined by Dr. MacGillivray, not the *Catenicellæ* of Busk.

instituted the genus *Caloporella.* I quote this because I think that probably the whole of this group, when living, had bosses, or elevations on the front, and not, as shown in the fossils, perforations only; and also as a warrant for making a new genus to include the species of this group, which is a well-defined one.

In this connection I would wish to state that the recent species of *Catenicellidæ* which I, when at Portland, found and examined alive showed that the fenestræ were, in most cases, elevations not depressions or cavities, the ectocyst where covering the fenestræ being distended and raised. I have noted in my diary the following species in which the fenestræ showed as elevations, *C. lorica*, *C. margaretacea*, *C. alata*, *C. carinata*, *C. perforata* and *C. hastata.*

Strongylopora, nov. gen.

Zoœcia ovoid, a submarginal row of round or oval pores, segregated, not aggregated.

The following are the species which I assign to this genus :—

Strongylopora pulchella (Map.)

Catenicella pulchella, Map. J.M.S. Vic., May, 1880.
C. concinna, McG. T.R.S.V., Nov., 1880.
C. pulchella, McG. P.Z.V., 1889.
C. pulchella, McG. Monograph p. 11.
C. pulchella, McG. Busk, "Challenger," xxx., p. 13.

Strongylopora circumcincta (Waters, sp).

Cat. circumcincta, Waters. Q.J.G.S., 1883, p. 432.
Cat. circumcincta, McG. Monograph, p. 9.

Strongylopora expansa (McG. sp.)

Cat. expansa, McG. Monograph, p. 10.

Strongylopora mamillata (McG. sp.)

Cat. mamillata, McG. Monograph, p. 10.

Strongylopora tenuis (McG., sp.)

Cat. tenuis, McG. Monograph, p. 10.

Strongylopora complanata, n. sp. (Pl. I., Fig. 6.)

Zoœcium broad, ovate, flat, with very wide, smooth, lateral processes, extending upwards as broad, flat, rostra ; avicularium

on one side large, curved ; on the other aborted. Fenestræ 13 round submarginal. Thyrostome arched above ; lower lip with a wide sinus, in each angle of which is a small round papilla.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

This is allied to *S. pulchella*, but the lateral processes are much wider than even in recent specimens of that species ; the papillæ at the angles of the sinus in the lower lip of the thyrostome are peculiar and the whole zoœcium is very flat, the only indication of the shape of the zoœcial cell being the row of pores.

Strongylopora nitida, n. sp. (Pl. I., Fig. 7).

Zoœcium oval, front slightly convex ; fourteen oval submarginal fenestræ. Thyrostome arched above, lower lip with a wide, quadrate sinus in the centre. Lateral processes with smooth supra-avicularian processes extending upwards as acute rostra. Avicularia small, on a level with the thyrostome.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

This is allied to *S. complanata* but is distinguished by the convexity of the zoœcium, the broad quadrate sinus in the lower lip and the acuminate supra-avicularian processes.

Strongylopora ampullacea, n. sp. (Pl. I., Fig. 8).

Zoœcium oval, vasiform dorsally ; lateral processes very wide, smooth ; a small avicularium at each upper angle ; fenestræ fourteen round perforations. Thyrostome suborbicular.

Locality.—Clifton Bank, Muddy Creek. (T. S. Hall). A single specimen.

It is allied to *S. expansa*, *S. pulchella*, *S. complanata*, and *S. nitida*, but it has not the suboral pore of the first-named, nor sinus in the lower lip of the other species.

Strongylopora cuneiformis, n. sp. (Pl. I., Fig. 9).

Zoœcia elongated, cuneiform ; thyrostome arched above, nearly straight below, with a small denticle on each side, near the lower angles ; lateral processes only visible in upper portion, where they are wide, retrocedent, with small avicularia at outer angles and long, pointed rostra directed upwards and somewhat dorsally.

Locality.—Mornington. (T. S. Hall).

This is allied to *S. tenuis*, but the lateral processes are very much more produced upwards into long retrocedent rostra which arise from the dorsal surface of the lateral processes.

The species of the preceding genus are characterised by having segregated, round, fenestræ as distinguished from the aggregated, pyriform fenestræ of *Catenicellæ*. I have found a form, which possesses both kinds, for which it is necessary to establish a new genus, and on examination of my slides of recent polyzoa to compare with the fossils I discovered I have another species which will be described in a separate paper.

Digenopora, n. gen.

Zoœcia with two sets of pores or fenestræ, one set submarginal, segregated, oval or round; the other set, on the front of the zoœcia below the thyrostome, pyriform.

Digenopora compta, n. sp. (Pl. I., Figs. 10 and 10*a*).

Characters as for genus. Zoœcia ovate and ventricose, 7·9 pyriform fenestræ on the front; 9·13 oval or round perforations outside the inner group. Large sessile avicularia at upper angles of the Zoœcia.

Localities.—Bairnsdale (J. Dennant); Mornington and Muddy Creek (T. S. Hall).

The geminate pair is from the Mitchell River near Bairnsdale, the single zoœcium is from Mornington and I have another single zoœcium, which, though slightly smaller, I consider belongs to this species, from Muddy Creek, I had at first supposed each of them to be of different species, seeing they came from places so wide apart, but there is not sufficient difference between them to warrant their separation. It will be seen that the zoœcia of the geminate pair are not exactly the same as the single zoœcium, but there is not more difference than often occurs between geminate and single zoœcia of other species.

The specimens of recent *Catenicella cribraria* in my cabinet show, I think, that that species probably should be relegated to this genus, as the marginal fenestræ are circular and decidedly larger than those on the middle of the zoœcia, but the latter are

scattered irregularly over the surface, not confined in a scutiform area. Dr. MacGillivray's figure of this species in his Monograph (Pl. I., Fig. 20) shows the inner finestræ more regularly disposed than they are in the recent species, so much so that I think it very probable it is not *C. cribraria*, but, a new species of Digenopora very closely allied to D. compta.

Catenicella halli, n. sp. (Pl. I., Figs. 11 and 11*a*).

Zoœcia ovoid. Fenestræ 9·11, pyriform, perforated. Thyrostome arched above, slightly curved below. Lateral processes broad, convex, with infra-avicularian and pedal chambers. Avicularia upon a broad protruding base. Supra-avicularian processes extending upwards into a long, curved, spinous process.

Locality.—Moorabool. (T. S. Hall).

Allied to *C. cincta* but is very much larger and has peculiar protruding bases for the avicularia. In the geminate pair the pedal chamber on one side is broken away and in the upper part the lateral processes are wider and more protruding than in the single zoœcia.

Catenicella acuminata, n. sp. (Pl. I., Fig. 12).

Zoœcia ovate. Fenestræ 11, pyriform, perforated. Thyrostome arched above, nearly straight below. Lateral processes wide, with large infra-avicularian and pedal chambers, the surfaces of which on one side are convex; avicularia small, on a level with the thyrostome; super-avicularian processes with hollow chambers, or perforations above the thyrostome; outer angle continued upwards into a very long spine.

Locality.—Bairnsdale. (J. Dennant). A single specimen, allied to *C. halli* but much larger, the superstructure above the thyrostome is different and it wants the protruding base to the avicularia.

Catenicella papillata, n. sp. (Pl. II., Fig. 14, 14*a*, 14*b*).

Zoœcia elongate, front surface smooth. Fenestræ 7. Lateral processes broad, smooth, with very slightly depressed infra-avicularian areas. Geminate zoœcia with 9·11 fenestræ. Thyrostome arched above, hollow below. Dorsal surface covered with small, round, papillæ.

Locality.—Clifton Bank, Muddy Creek. (T. S. Hall).

The characteristics of this species are the very smooth front and papillose dorsal surfaces. The geminate pair is on the front view somewhat different from the single zoœcia, notably in having a greater number of fenestræ (an unusual occurrence) but the dorsal surface showed that it belonged to the same species. I would wish to note that the dorsal surface figured is that of the single zoœcium (Fig. 14*a*) which was drawn before it was mounted. I afterwards found another and mounted it on the same slide to show the dorsal surface, but it is imperfect, so I have reproduced the drawing of the perfect one.

Catenicella baccata, n. sp. (Pl. II., Figs. 15 and 15*a*).

Zoœcia elongate. Lateral processes with depressed pedal and infra-avicularian areas. Fenestræ 15·17, oval, depressed; not perforated. Thyrostome arched above, slightly hollow below; peristome raised, produced upwards as a ridge, and laterally as thickened ridges, at the extremities of which are small avicularia. Dorsal surface coarsely papillose with a small sulcate area.

Locality.—Mornington. (T. S. Hall). A single geminate pair.

This is allied to *C. papillata*, but is distinguished by being much larger, more elongate, the papillæ on the dorsal surface are larger and oval, the front surface is not so smooth and it has lateral ridges with avicularia at the outer ends. The fenestræ are also peculiar, being oval depressions not perforations.

Catenicella ampliata, n. sp. (Pl. II., Figs. 16 and 16*a*).

Zoœcia broadly ovate, rather flat in front. Fenestræ 11, elongated, pyriform, convex and perforated. Thyrostome lofty, arched above; sinuous below. Lateral processes very wide and flat, with a very narrow pedal depression. Avicularia at upper angles with large conical flat rostra above. Dorsal surface very much raised longitudinally so that a transverse section of zoœcium proper is triangular with rounded corners.

Locality.—Mornington. (T. S. Hall).

The specimen drawn has the conical rostra perfect, but as the thyrostome is imperfect I have drawn one (Fig. 16*a*) with the fenestræ from another specimen on the same slide.

Catenicella dennanti, n. sp. (Pl. II., Fig. 17).

Zoœcia quadrate, ventricose. Fenestræ 9·11, large, pyriform, with raised margins. Thyrostome lofty, arched above, nearly straight below. Lateral processes small. Large prominent, auricular, avicularia at upper angles.

Locality.—Bairnsdale. (J. Dennant). A single geminate pair.

Catenicella hiulca, n. sp. (Pl. II., Fig. 18).

Zoœcium ovoid, flat in front. Fenestræ indistinct, probably 7. Thyrostome arched above, sinuous below, prominent. Lateral processes very wide, projecting forwards with a very large imperfectly developed avicularium on each side.

Locality.—Muddy Creek. (T. S. Hall),

The large imperfect avicularia and the lateral processes projecting forward are distinctive. In the figure the right hand lateral process is seen edgeways.

Catenicella acutirostris, n. sp. (Pl. II., Fig. 19).

Zoœcia ovate. Fenestræ 7. Lateral processes with deeply depressed infra-avicularian and pedal chambers. Thyrostome lofty, arched above, incurved below. Avicularia at upper angles, with very long mandibles and a semi-circular cavity at the lower part, separated from the mandibular cell by a bar.

Locality.—Muddy Creek. (T. S. Hall).

This is a solitary specimen and though imperfect it is evidently quite distinct from any described species as the avicularia are peculiar in having a long, almost acicular mandible and a semi-circular cavity, with a perforation at the bottom, separated from the mandibular cell by a bar, or plate; the avicularium on the right hand side (in the figure) is broken away but a portion of the bar, or plate, is preserved.

Costaticella, nov. gen.

Zoœcia ovoid, rather flat. Front surface with very numerous narrow, elongated ribs diverging from a median line.

This genus I institute to include the new species described below and *Catenicella lineata*, of which Dr. MacGillivray remarks that it is "a very peculiar species, totally unlike any other."

Costaticella lineata, McG.

Catenicella lineata, McG. Monograph, p. 14, pl. i., fig. 30.

Costaticella escharoides, n. sp. (Pl. I., Fig. 13).

Zoœcia elongated, oval, flat; lateral processes wide, with supra- and infra- avicularian and pedal chambers. The central area is flat and composed of many (22 or more) narrrow, convex ribs, imperforate, but small fissures are present which may be the result of attrition; the median line, on which the ribs abut, is zigzag.

Locality.—Mornington. (T. S. Hall).

This is allied to *C. lineata* but the fenestral ribs are not perforated at the ends as in that species, and the lateral processes are very wide; unfortunately they are imperfect, the outer portions being broken.

Strophipora excavata, n. sp. (Pl. II., Fig. 20 and 20*a*).

Zoœcia small, somewhat quadrate. Thyrostome suborbicular; a raised band extending from the base of the zoœcium to the thyrostome, with a median oval depression in the upper part; depressed areas on each side with 2·3 pores. Avicularia at upper angles. Dorsal surface with much depressed areas on each side of the zoœcia.

Locality.—Clifton Bank, Muddy Creek. (T. S. Hall).

This differs from *S. harveyi* in its smaller size and the deep wide depression on the dorsal surface leaving a *broad* raised median portion at the rear of each zoœcium and not a narrow linear ridge.

Strophipora sulcata, n. sp. (Pl. II., Figs. 21 and 21*a*).

Zoœcia ovoid, front with a raised broad band in the centre, with a depressed area on each side in which are 2·3 perforations. Thyrostome arched above, imperfect below, wide lateral processes above the thyrostome with avicularia at outer angles. Dorsal surface smooth, with a narrow, deep furrow on each side.

Locality.—Clifton Bank, Muddy Creek. (T. S. Hall). A single specimen.

The thyrostome is imperfect but the deep narrow furrows on the dorsal surface are very distinctive and separate it from the last described species.

Catenaria tenuis, n. sp. (Pl. II., Fig. 22).

Zoœcium tubular below, ventricose and ovate above. Thyrostome suborbicular. Front of zoœcium oval, raised; upper part divided radially into four triangular areas; two lateral and two distal; the lower part with a narrow, irregularly curved, raised band or fillet. An avicularium on a broad, blunt, retrocedent rostrum at each upper angle. Socket for connecting tube, or base, of distal zoœcium on the side.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

It is much smaller but is very similar in form to *C. bicornis*, Busk (Challenger Polyzoa, p. 14, pl. iii., fig. 2). The ornamentation of the surface of the raised oval area is not very well preserved and rather difficult to make out, but it is quite different from that of *C. bicornis*. The genus has not been hitherto recorded as fossil.

Catenariopsis, nov. gen.

Zoœcia pyriform, ventricose. Thyrostome suborbicular; below which is a semi-circular opening at the upper part of which is a flat descending plate, with a curved slender process at each end, pointing downwards into the cavity of the zoœcia and towards the sides; below this is a crescentic area, finely punctate. A perforation (avicularian ?) on each side above the thyrostome. Zoœcia tapering downwards into a peduncle.

Catenariopsis morningtoniensis, n. sp. (Pl. II., Fig. 23).

Characters as for genus.

Locality.—Mornington. (T. S. Hall).

This a most puzzling specimen. It is very like a *Catenaria* in form (hence the name) but the two openings are very peculiar. I have described the upper one as the thyrostome as the lower one may be the analogue of the structure of that part of the zoœcia immediately below the thyrostome in *Steganoporella* and *Thalamoporella*, as the spinous process, on one side, seems to

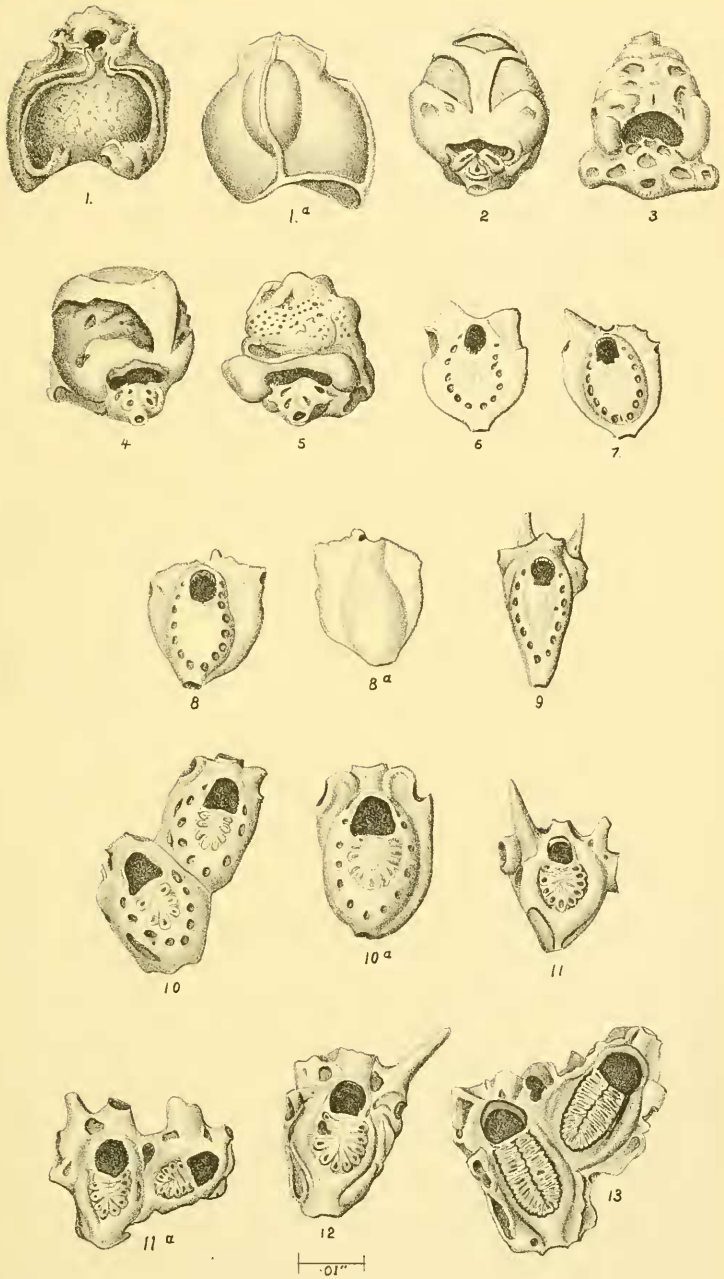
show that they are the folds of a dividing structure seen edgeways. On the other hand this may be the true thyrostome and the upper opening an oœcium with the front broken away, but the appearance hardly seems to warrant this. I have seen only the specimen figured, it is a very strange form. I cannot refer it to any known genus, and there is nothing to show the character of the zoarial growth, though it seems probable it may originate from a creeping stolon like *Ætea* or *Liriozoa*. It is undoubtedly a polyzoon.

For the information of those who may at any time examine the slides of new species of *Catenicellidæ* described in these papers (all of which will be deposited in the National Museum) I would wish to point out that a few of the first slides I mounted were what I may term "omnibus" slides, *i.e.*, they contained specimens of several species, and as the *Catenicellidæ* are so minute and so fragile (I have found several have developed cracks since they were mounted) that I could not attempt to remount them separately, I have allowed them to remain, but have removed all those which are not new to save observers the trouble of hunting among numerous specimens for the types, except a few to remove which would have endangered them.

EXPLANATION OF FIGURES.

Plates I. and II.

Fig. 1. Stenostomaria solida (oœcium).
„ 2. Catenicella nutans.
„ 3. C. conica.
„ 4. C. rotundata.
„ 5. C. personata.
„ 6. Strongylopora complanata.
„ 7. S. nitida.
„ 8. S. ampullacea.
„ 9. S. cuneiformis.
„ 10. Digenopora compta.
„ 10*a*. „ „ (single zoœcium).
„ 11. Catenicella halli.
„ 11*a*. „ „ (geminate pair).



R. Wendel lith.